

REMARKS

Claims 1 through 21 are currently pending in the application.

Claims 1 through 15 are withdrawn from consideration as being directed to a non-elected invention.

Claims 16 through 21 stand rejected.

This amendment is in response to the final Office Action of June 19, 2002.

Claims 16 through 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by Deguchi (JP 62-18714).

Claim 16 was rejected under 35 U.S.C. § 102(b) as being anticipated by Kinoshita (JP 58-90728).

Claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita in view of Xu (U.S. Patent 5,908,319).

After carefully considering the cited prior art, the rejections, and the Examiner's comments, Applicants have amended the claimed invention to clearly distinguish over the cited prior art.

Applicants submit that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.

*Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claims 16 through 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by Deguchi.

Deguchi relates to a method for forming alignment marks in semiconductors using dry etching methods to form finely localized roughened areas, said marks having a part with high light reflectance and another part having low light reflectance, wherein positioning control of the substrate on which these parts are formed is performed by detecting the reflected light from both

surface of semiconductor substrate is coated with resist. Next, a resist pattern is formed as shown in drawing FIG. 1(a) to have specific sizes for high-reflectance parts (portions with resist) and low-reflectance parts (portions without resist) in the alignment mark. Next, by performing dry etching by high-frequency glow discharge using  $\text{CCl}_2\text{F}_2$  gas, *the portions without resist are filled with fine square conical projections* as shown in drawing FIG. 1(b). Finally, the resist layer is removed and the form shown in drawing FIG. 1(c) is created (Id., lines 3-15, page 4). Clearly, the resist pattern and the pattern dry-etched into the substrate are very different as specifically shown in drawing FIG. 1(b).

Applicants respectfully submit that Deguchi does not anticipate the instant invention recited in presently amended independent claim 16 because each and every element as set forth therein is not found, either expressly or inherently described in Deguchi. In particular, Deguchi does not expressly or inherently disclose, teach or suggest overlay targets with a series of raised lines as specifically described and claimed in the present invention. Presently amended independent claim 16 recites a method for forming an overlay target including a series of raised lines, which includes, among other things, "patterning said resist layer to include a resist pattern *defining said overlay target including a series of raised lines*" and "etching said substrate to form said overlay target *including said resist pattern with said series of raised lines*." Deguchi does not expressly or inherently disclose, teach or suggest a resist pattern formed in the resist layer where the resist pattern is used to etch *that same resist pattern into the substrate*. Rather, as summarized previously, Deguchi only discloses alignment marks with finely localized roughened areas by forming a resist pattern and dry-etching areas without resist by forming fine square conical projections. Clearly, the resist pattern and the pattern of fine square conical projections dry-etched in the areas without resist are completely different as specifically shown in drawing FIG. 1(b). Thus, Deguchi does not anticipate presently amended independent claim 16.

Further, claims 17 through 21 are allowable, among other reasons, as depending either directly or indirectly from presently amended independent claim 16, which should be allowed.

Claim 21 is further allowable since Deguchi does not expressly or inherently disclose, teach, or suggest "wet etching said substrate to form said overlay target including said resist pattern with said series of raised lines."

Claim 16 was rejected under 35 U.S.C. § 102(b) as being anticipated by Kinoshita (JP 58-90728).

Kinoshita relates to a method for manufacturing a positioning mark on a semiconductor wafer. First, a mask layer is formed on a semiconductor wafer. Next, a filter resist layer is formed on the mask layer. The photoresist layer is then etched to form a plurality of *fine windows*. Finally, the portions of the exposed mask layer are etched to form a plurality of *fine depressions having an arc-shaped cross-sectional form* that are arranged on the main surface of the semiconductor wafer. (Kinoshita, claim 2, first paragraph of the detailed description). Clearly, the resist pattern and the pattern of fine depressions having an arc-shaped cross-sectional form etched into the surface of the semiconductor wafer are very different as specifically shown in drawing FIG. 3(e).

Applicants respectfully submit that Kinoshita does not anticipate the instant invention recited in presently amended independent claim 16 because each and every element as set forth therein is not found, either expressly or inherently described in Kinoshita. In particular, Kinoshita does not expressly or inherently disclose, teach or suggest overlay targets with a series of raised lines as specifically described and claimed in the present invention. Presently amended independent claim 16 recites a method for forming an overlay target including a series of raised lines, which includes, among other things, "patterning said resist layer to include a resist pattern *defining said overlay target including a series of raised lines*" and "etching said substrate to form said overlay target *including said resist pattern with said series of raised lines*." Kinoshita does not expressly or inherently disclose, teach or suggest a resist pattern formed in the resist layer where the resist pattern is used to etch *that same resist pattern into the substrate*. Clearly, the pattern in the resist layer and the pattern that includes a plurality of fine depressions having

semiconductor wafer are completely different. Thus, Kinoshita does not anticipate presently amended independent claim 16.

For each of the foregoing reasons, it is respectfully requested that the section 102(b) rejections of each of claims 16 through 21 be withdrawn.

Claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita in view of Xu (U.S. Patent 5,908,319).

Applicants further submit that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure.

The teachings of Kinoshita have been summarized herein.

Xu relates to the cleaning and stripping of photoresist from surfaces of semiconductor wafers during manufacturing. More specifically, it relates to a method for ashing a device with a resist layer by downstream microwave plasma etching by a process employing primarily oxygen and a trace amount of a fluorine-containing gas (Col. 1, ll. 5-8, 28-30, 40-42).

Claim 21, as proposed to be amended herein, recites "wet etching said substrate to form said overlay target *including said resist pattern with said series of raised lines.*"

Neither Kinoshita nor Xu, taken alone or in combination, teaches or suggests the elements of Applicants presently claimed invention calling for a method for forming an overlay target including a series of raised lines which includes, among other things, "wet etching said substrate to form said overlay target *including said resist pattern with said series of raised lines*" to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the presently

Therefore, it is respectfully submitted that presently amended claim 21 is allowable over the combination of Kinoshita and Xu. It is, therefore, respectfully requested that the section 103(a) rejection of claim 21 be withdrawn.

Applicants request entry of this amendment for the following reasons:

The amendment is timely filed.

The amendment clearly places the application in condition for allowance.

The amendments to claims should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings, do not add any new matter to the application, and clearly comply with the provisions of 35 U.S.C. § 132

Further, the amendments do not raise new issues or require further search.

Applicants submit that claims 16 through 21 are clearly allowable over the cited prior art.

Applicants request the allowance of claims 16 through 21 and the case passed for issue.

Respectfully submitted,



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Enclosure: Version with Markings to Show Changes Made

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APPENDIX A

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

A marked-up version of each of the presently amended claims, highlighting the changes thereto, follows:

16. (Amended) A method for forming an overlay target including a series of raised lines, the method comprising:  
providing a substrate;  
depositing a resist layer over said substrate;  
patterning said resist layer to include a resist pattern defining said overlay target including a series of raised lines; and  
etching said substrate to form said overlay target including said resist pattern with said [a] series of raised lines.

21. (Amended) The method of claim 16, wherein said etching comprises wet etching said substrate to form said overlay target including said resist pattern with said [a] series of raised lines.